

## ARAC ESHWG REPORT 25.1353(c)(5)

### 1 - What is underlying safety issue addressed by the FAR/JAR?

The FAR/JAR gives requirements relating to the design and installation of nickel cadmium storage batteries.

### 2 - What are the current FAR and JAR standards?

#### Current FAR text:

#### **Section 25.1353 Electrical Equipment and Installations**

(c) Storage batteries must be designed and installed as follows -

- (5) Each nickel cadmium battery installation capable of being used to start an engine or auxiliary power unit must have provisions to prevent any hazardous effect on structure or essential systems that may be caused by the maximum amount of heat the battery can generate during a short circuit of the battery or of individual cells.

#### Current JAR text:

#### **JAR 25.1353 Electrical equipment and installations**

(c) Storage batteries must be designed and installed as follows -

- (5) Each nickel cadmium battery installation must have provisions to prevent any hazardous effect on structure or essential systems that may be caused by the maximum amount of heat the battery can generate during a short circuit of the battery or of individual cells.

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### ~~3 - What are the differences in the standards and what do these differences result in?~~

JAR 25.1353(c)(5) requires provisions to prevent any hazardous effect on structure or essential systems by all nickel cadmium batteries regardless of their capabilities; whereas FAR 25.1353(c)(5) requires provisions only for the batteries capable of being used to start an engine or auxiliary power unit.

### 4 - What, if any, are the differences in the means of compliance?

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All nickel cadmium batteries are required to show compliance to the JAR 25.1353(c)(5) requirements. Whereas FAR 25.1353(c)(5) requires only batteries with engine and APU start capability to show compliance.

### **5 – What is the proposed action?**

The proposed action is to adopt JAR 25.1353(c)(5). This allows for coverage of the greater range of battery sizes and capabilities.

### **6 - What should the harmonized standard be?**

- (c) Storage batteries must be design and installed as follows –
  - (5) Each nickel cadmium battery installation must have provisions to prevent any hazardous effect on structure or essential systems that may be cause by the maximum amount of heat the battery can generate during a short circuit of the battery or of individual cells.

*7 - How does this proposed standard address the underlying safety issue (identified under #1)?*

Safety is ensured for the design and installation of nickel cadmium batteries regardless of their sizes and capabilities.

**8 - Relative to the current FAR, does the proposed standard increase, decrease, or maintain the same level of safety? Explain.**

By covering all nickel cadmium battery sizes, the safety will be increased.

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**9 - Relative to current industry practice, does the proposed standard increase, decrease, or maintain the same level of safety? Explain.**

This proposal is in line with current industry practice for aircraft main batteries used for engine or APU starting, however in relation to all other nickel cadmium batteries, the level of safety may be increased.

**10 - What other options have been considered and why were they not selected?**

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The adoption of FAR was considered however for the reasons as stated above JAR was selected.

The ESHWG considered deletion of the reference to "Nickel Cadmium" batteries so that the rule would apply to all battery types. This change was not adopted because it does not fit within the fast track harmonization guidelines and would require additional evaluation of the impact on other battery types.

### **11 - Who would be affected by the proposed change?**

As stated above for main batteries the proposal is in line with current design practices and therefore the effect is considered to be minimal. There may be an impact on other nickel cadmium battery installations by aircraft operators, manufacturers and modifiers.

### **12 - To ensure harmonization, what current advisory material (e.g., ACJ, AMJ, AC, policy letters) needs to be included in the rule text or preamble?**

None.

### **13 - Is existing FAA advisory material adequate?**

There are no current published FAA or JAA advisory materials

### **14 - How does the proposed standard compare to the current ICAO standard?**

This proposal is in line with ICAO Annex 8 Chapter 8 Electrical Systems.

### **15 - Does the proposed standard affect other HWG's?**

This proposal does not affect other HWG's.

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### **16 - What is the cost impact of complying with the proposed standard?**

As the proposal is in line with current design practices for aircraft main batteries the cost impact will be negligible. There may be an impact on other nickel cadmium battery installations by aircraft operators, manufacturers and modifiers.

### **17 - Does the HWG want to review the draft NPRM at "Phase 4" prior to publication in the Federal Register?**

Yes.

**18 – In light of the information provided in this report, does the HWG consider that the “Fast Track” process is appropriate for this rulemaking project, or is the project too complex or controversial for the Fast Track Process. Explain.**

The ESHWG considers that the fast track harmonization process is appropriate for this rule.

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